Dear National Metal Finishing Strategic Goals Program stakeholder:

Please find attached the Metal Finishing EMS Template (April 2003). This revised template includes a set of recommended changes to the previous version (November 2001). The text of the previous version, with a successful record of helping local and state governments write EMS documents for metal finishers and bringing about environmental performance improvement, has been augmented by means of footnotes. This new version has been endorsed by the USEPA and, through the involvement of Christian Richter, the Surface Finishing Industry Council.

The EMS Template now presents self-explanatory footnotes that indicate changes that would be recommended on the basis of Performance Track EMS criteria, ISO 14001 EMS requirements, or both of these together. That is, for facilities wishing to pursue these programs, the footnotes point out additional language that should be adopted or changed to conform to the Performance Track EMS criteria or the ISO14001 EMS standard. Note that there is no obligation to adopt the new recommendations. Following the template is strictly voluntary; the results must speak for themselves.

Please note that the Compliance element has a California focus. It serves as a good example of how this element can be addressed for other states.

If you have questions, please contact me at 202/566-2960 or hessling.michael@epa.gov.

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Metal Finishing Industry Sector Point of Contact

INTRODUCTION

OVERVIEW

This Template is designed to help metal finishers create an environmental management system (EMS) that improves compliance with environmental regulations, promotes pollution prevention (P2), and can be implemented in a streamlined, cost-effective manner. An EMS provides a framework for a metal finisher to systematically identify, prioritize, manage, mitigate, and document the environmental aspects and impacts of its operations (see Figure 1).

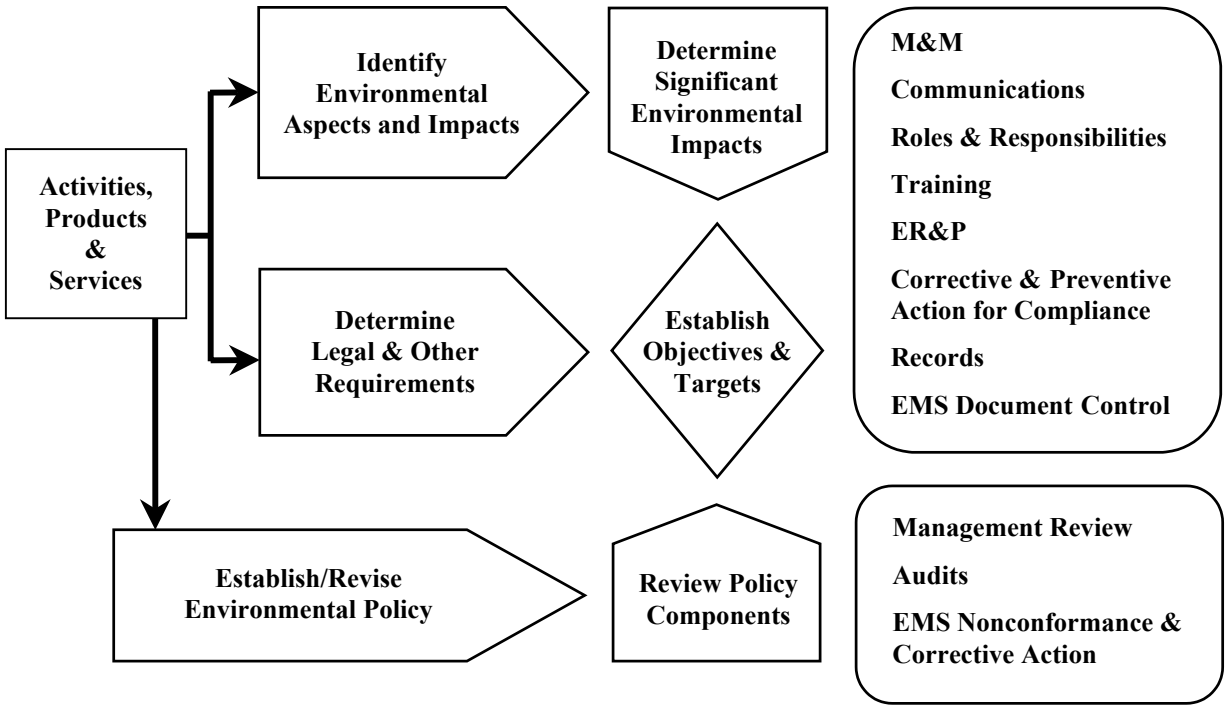

Figure 1. An EMS establishes a continuous improvement process wherein a metal finisher establishes and achieves environmental performance objectives. ISO/PT-1

ISO/PT-1 **Change Configuration of:** "Identify Environmental Aspects and Impacts" and "Determine Legal and Other Requirements" boxes so that they both point to "Determine Significant Environmental Aspects." "Determine Significant Environmental Aspects" should then point to "Establish Objectives and Targets."

The metal finishing EMS (MFEMS) Template consists of four modules, and each module consists of one or more elements.

MFEMS TEMPLATE ELEMENTS

Number	Element
Module 1: Policy	
1.1	Environmental Policy
Module 2: Planning	
2.1	Environmental Aspects and Impacts
2.2	Compliance
2.3	Objectives and Targets
Module 3: Implementation	
3.1	Roles and Responsibility
3.2	Communications
3.3	Training
3.4	EMS Document Control
3.4a	EMS Documentation
3.5	Operational Control
3.6	Emergency Response and Preparedness
Module 4: Review and Improvement	
4.1	Measurement and Monitoring
4.2	EMS Nonconformance and Corrective Action
4.3	Corrective and Preventive Action for Compliance
4.4	Records
4.5	Audits
4.6	Management Review

This introduction:

- ☞ reviews EMS benefits
- ☞ describes important features of an EMS
- ☞ outlines "pre-EMS" activities that should be considered before you begin using this Template
- ☞ provides general EMS implementation ideas
- ☞ introduces the MFEMS Template organization and format

BENEFITS OF IMPLEMENTING AN EMS

Quotes from metal finishing companies who have used this Template:

"The EMS gave Artistic Plating a better general awareness about the environment. It helped us look at the cost of different aspects and at ways of reducing not only the cost, but the amount of hazardous materials used. We are more aware of where to look for substitutes."
– Ruben Angel, Artistic Plating & Metals Finishing

"This was an excellent program that is very helpful in keeping the plant in compliance. Just compliance is not enough! We must be able to show agencies and the public what we are accomplishing in pollution prevention, waste minimization, and source reduction."
– Nick Avedissian, Quaker City Plating

"This program increases awareness of how to manage out environmental issues."
– Willie Bell, Metal Surfaces, Inc.

"The EMS Bulletin Board made my job easier when an inspector came by."
– Hassan Dabiri, Highland Plating

"The EMS program helps achieve compliance and at the same time improve our bottom line. We set our Objectives and Targets and raised our level of awareness and our team efforts in areas like pollution prevention. It gave us tools to communicate our progress, successes, and the hurdles to our objectives."
– Filomena Bundang, Crown City Plating

"Very informartive program. It was great that everyone was willing to share their information. We heard about other ways of doing things. The Compliance Checklist is absolutely invaluable. It really helped review what you are doing and what you are not doing."
– Karron Hagler, Metal Surfaces, Inc.

"We use our EMS bulletin board as a marketing tool with customers. It makes a difference. We got 3 good customers within the last 6 months."
– Sandy Mayfield, Highland Plating

"The EMS workshop series is a real value to a company like ours. A small company needs these kinds of tools to help us stay on track."

– Carol McCracken, Foss Plating Co.

"EMS is a very positive program, especially for a company that doesn't have much environmental management in place. The EMS Template helps us to participate with EPA and to know what they are looking for."

– Clarence Young, Gene's Plating

"At A.C. Plating, the EMS helped up open up lines of communication between management and workers, so we know what is going on. EMSs help share the work load."

– Bob McBride, A.C. Plating

"Setting up an EMS planted valued seeds. It should be very fruitful down the road. It provides a good matrix that we can and should be using."

– Geoff Blake, All Metals Processing of O.C.

Incentives for Implementing an Environmental Management System	
Demonstrate commitment to environmental management	**Reduce environmental costs and improve bottom line**
Improve working conditions for employees	**Streamline regulatory compliance**
Establish and maintain positive community relations	**Reduce raw material use and waste generation**
Improve relations with government agencies	**Distinguish company from competition**
Enhance public image	**Make progress towards ISO 14000 registration**
Reduce insurance premiums	**Meet Strategic Goals Program goals**
Avoid fines and expensive corrective action measures due to compliance issues or lawsuits	**Improve process control and monitor trends**

IMPORTANT EMS FEATURES

- 🕮 ***Management commitment.*** An EMS without management commitment is like a car without a driver – it will not run. Successful EMSs are characterized by upper management commitment demonstrated through words and actions.
- 🕮 ***Continuous improvement.*** An EMS features continuous improvement through "plan-do-check-act" strategies that lead to more efficient EMS implementation and better environmental performance.
- 🕮 ***Employee awareness and involvement.*** Employees should be aware of the EMS, its purpose and elements, and how they contribute to achieving environmental performance objectives.
- 🕮 ***Dynamic and adaptable.*** An EMS should be dynamic and adaptable to respond to changing environmental priorities, regulations, and business conditions.
- 🕮 ***Results-oriented.*** Although the EMS creates documentation during its implementation, the focus should be on achieving results, that is, measurable or demonstrable environmental performance improvements.
- 🕮 ***Emphasis on pollution prevention.*** When developing options for achieving objectives and targets, the EMS favors solutions that prevent pollution through source reduction over others lower on the waste management hierarchy, such as improved treatment.

BEFORE YOU BEGIN

- ✓ Obtain top management commitment.
- ✓ Identify an Environmental Manager responsible for coordinating EMS efforts and other environmental issues.
- ✓ Form an EMS Team led by the Environmental Manager and including process supervisors, platers, wastewater treatment operators, and others familiar with your company's processes. At least one person on the TMS Team should have good spreadsheet skills (for example, Microsoft Excel), which will streamline measurement charting.
- ✓ Communicate the EMS initiative to all employees and invite employee input.
- ✓ Conduct a preliminary review, or gap analysis, to identify (1) current environmental management practices that can "evolve" into EMS elements and (2) missing EMS elements.
- ✓ Quantify baseline environmental conditions at your facility for comparison to future conditions.

EMS IMPLEMENTATION IDEAS

⇒ Avoid "reinventing" procedures for the EMS. Leverage components of other business systems and programs; for example, adapt existing training programs to include environmental training or model EMS documentation and document control procedures on existing quality system document control.

⇒ EMS elements should be implemented in a top-down fashion and address priority areas first.

Smaller organizations such as metal finishing companies have some advantages over larger organizations in ensuring effective environmental management. This is because smaller organizations generally have more direct lines of communication, less complex organization structures, employees who perform multiple functions, and easier access to management.

⇒ Get help! EMS assistance can be obtained from a variety of organizations and documents including the following:

- An Implementation Guide for Small and Medium-Sized Organizations (http://www.epa.gov/OW-OWM.html/iso14001/wm046200.htm)
- Environmental Management Systems: A Guide for Metal Finishers (http://www.nsf-isr.org/)
- National Metal Finishing Resource Center (http://www.nmfrc.org)

MFEMS TEMPLATE ORGANIZATION AND FORMAT

The MFEMS Template consists of four modules that parallel implementation phases:

Module 1: Policy

Module 2: Planning

Module 3: Implementation

Module 4: Review and Improvement

Each module consists of one or more elements that comprise the MFEMS. Each module element has the following structure:

- Brief overview of element subject, instructions, and references (2 pages)
- Procedure for implementing element (1 page)

- Tools and examples to assist element implementation (1 to 5 pages)

Nomenclature and concepts for each element were derived generally from ISO 14001; however, the Template does not strictly adhere to all aspects of ISO 14001.

Creating and implementing an EMS is a challenging endeavor. Although companies may choose to implement all elements of the EMS contained in this Template as part of a single effort, experience testing this Template with metal finishers indicates that companies gain momentum and understanding most quickly when they take 3 to 6 months to complete the following elements first:

- Element 1.1 Environmental Policy
- Element 2.1 Environmental Aspects and Impacts
- Element 2.2 Compliance
- Element 2.3 Objectives and Targets
- Element 3.1 Roles and Responsibilities
- Element 3.2 Internal Communication
- Element 4.1 Measurement and Monitoring

The rest of the elements can then be implemented over the next 3 to 6 months.

Note: This Template is not an EMS primer or general guidance document. Template users should be familiar with basic EMS concepts or review numerous existing general EMS documents.

GLOSSARY

Baseline Environmental Conditions. Environmental conditions at the facility before EMS implementation.

Commitment to Compliance. The organization's commitment to achieving and or maintaining regulatory compliance. This commitment is reflected in documented practices and procedures that ensure that regulatory compliance is a top priority of the organization and the EMS. Examples include systematic and documented procedures for periodic regulatory compliance audits and for corrective action taken in response to discovered instances of noncompliance.

Document Control. A system to ensure responsible management of all EMS documents.

Emergency Response and Preparedness Program. A program that plans and prepares for emergencies, such as employee injuries or hazardous chemical spills.

Environmental Aspects. An element of an organization's activities, products, or services that can interact with the environment.

Environmental Impacts. Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's activities, products, or services.

Environmental Management System (EMS). A continuous cycle of planning, implementing, reviewing and improving the actions that an organization takes to meet its environmental obligations.

EMS Audit. A process of objectively obtaining and evaluating evidence to determine whether an organization's EMS is operating as intended.

EMS Nonconformance and Corrective Action. A corrective action taken to address and rectify a deficiency or nonconformance with the EMS.

Environmental Metrics. Measurable parameters that reflect environmental performance trends.

Environmental Policy. Company statement of its intentions and principles in relation to its overall environmental performance, which provides a framework for action and a backup for its environmental objectives and targets.

Gap Analysis or Preliminary Review. A review of an organization's position with regard to the environment done in advance of or at the beginning stages of planning the EMS. The review should cover three key areas: legislative and regulatory requirements, identification of significant environmental aspects, and an examination of all existing environmental management practices.

ISO 14001. A widely accepted, official international standard for environmental management systems.

Management Review. Periodic review of an EMS to ensure effectiveness and continuous improvement.

Noncompliance and Corrective Action/Preventive Action: A corrective (or preventive) action taken to address and rectify (or prevent) a deficiency or noncompliance with environmental standards or regulations.

Objective. A facility goal that is consistent with the company's environmental policy, priority environmental aspects, and applicable environmental regulations.

Operational Control. The identification, planning, and management of operations and activities in line with the EMS policy, objectives and targets.

Pollution Prevention (P2). Prevention of pollution through source reduction and waste minimization techniques and technologies.

Prioritization Criteria. Criteria for prioritizing environmental aspects.

Records. Proof of actions taken that were outlined in the EMS.

Target. A detailed performance requirement related to and supporting a specific objective. Such targets feature measurable parameters and timelines for attainment.